What is claimed is:

1.   A method of describing a multiple level digest segment information scheme for multimedia contents in order to provide multiple levels of digest streams for each multimedia content with small amount of additional storage in accordance with an embodiment comprising the steps of:

describing the level information of digest segments by multiple levels in the content-based data area of the multimedia stream;

describing the digest level information and the time range information of each digest segment in a digest segment information structure; and

describing digest segment information scheme with a set of digest segment information structures.

2.   The method of claim 1, wherein the time range information is the start point and end point of or the start point and duration of the digest segment.

3.   The method of claim 1, wherein a digest level running time information or a digest stream running time information is added to the digest segment information scheme, in which the digest level running time information is information about the sum of the running time of digest segment information structures of the same digest level is described according to digest levels, and the running time information of the digest stream is a running time information of a possible digest streams.

4.   A method of describing a multiple level digest segment information

18

scheme for multimedia contents in order to provide multiple levels of digest streams for each multimedia content with small amount of additional storage in accordance with an embodiment in accordance with a second embodiment of the present invention comprising the steps of:

5   describing the digest level information of digest segments to digest level headers by multiple levels in the content-based data area of a multimedia stream;

describing the time range information of the digest segments in a digest segment information structure; and

describing a digest stream information scheme with a set of digest level

10   headers, each of which has a set of digest segment information structures with the same digest level.

5.   The method of claim 4, wherein the time range information is the start point and end point or the start point and duration of the digest segment.

15

6.   The method of claim 4, wherein a digest level running time information or a digest stream running time information is added to the digest segment information scheme, in which the digest level running time information is information about the sum of running time of digest segment information structures

20   of the same digest level is described according to digest levels, and the running time information of the digest stream is a running time information of a possible digest streams.

7.   The method of claim 4, wherein the digest level headers can be

25   arranged with the order of importance(level) in order to construct a digest stream

from multi level digest segment information scheme fast.

8.   The method of claim 4, wherein the digest level segment information

structures can be arranged with the order of their time range information in order to construct a digest stream from multi level digest segment information scheme fast

9.   A method of generating multiple levels of digest streams for multimedia contents in accordance with the present invention comprising the steps of:

detecting the digest level and time range information of the digest segment information structures from the multiple level digest stream information scheme contained in the content-based data area of the multimedia stream; and/or

detecting the additional information about each digest segment information structure such as occurrence of events, appearance of persons, objects, backgrounds, and situation information of events, persons, objects, backgrounds contained in the content-based data area of the multimedia stream; and

when a condition is queried by the user, generating a multiple level digest stream by arranging the digest segments with a priority of more than a certain level corresponding to the condition in a time sequence.

10.   The method of claim 9, wherein a digest level running time information or a digest stream running time information can be used to find the matched level of digest stream with a user's input fast where the digest level

running time information is information about the sum of running time of digest segment information structures of the same digest level is described according to digest levels, and the running time information of the digest stream is a running time information of a possible digest streams.

11. The method of claim 10, wherein a parity check is performed by comparing the total running time of the plurality of digest segments of the same digest level with the digest level running time of that digest level.

12. The method of claim 10, wherein a parity check is performed by comparing the total running time of digest segment information structures having a digest level less than or equal to a particular level among the plurality of digest segments with the digest stream running time of that digest level.

13. An apparatus for generating a multiple level digest stream of a multimedia steam comprising:

a user input unit;

a digest stream level determining unit for determining and outputting a digest level of a digest stream corresponding to a condition queried by the user input unit, upon receipt of a multimedia stream signal; and

a decoder for decoding digest segments of the above digest level from the multimedia stream signal.

14. The method of claim 11, wherein the condition is the running time of a digest stream.

15.   The method of claim 13, wherein the condition is one of a time constraint of digest stream, a level information of digest stream, an occurrence of an event, an appearance of a person, a background, an object, situation information about of event, person, object, background.

16.   The method of claim 13, wherein the condition is combination of a time constraint of digest stream, a level information of digest stream, occurrence of events, appearance of persons, backgrounds, objects, situation information about of events, persons, objects, backgrounds.

17.   The method of claim 13, wherein a digest level information and a time range information, and/or the information of the sum of the running time of each digest segment are contained in the digest level.

18.   The method of claim 17, wherein the time range information the start point and end point or the start point and duration of the digest segment.

19.   The method of claim 13, wherein the digest stream level determining unit comprises:

a multiple level digest segment information scheme analyzing unit for computing the running time of each digest stream by analyzing a multiple level digest segment information scheme contained in the content-based data of the multimedia stream signal; and

a digest stream information display unit for selecting and querying a running time of a plurality of running times by the user, by displaying the running times by

computed digest stream.

20.   The method of claim 13, wherein the digest stream level determining unit comprises:

5   a multiple level digest segment information scheme analyzing unit for computing the running time of each digest stream, by analyzing a multiple level digest segment information scheme contained in the content-based data of the multimedia stream signal; and

a digest level determining unit for outputting a digest level of a digest
10   stream corresponding to a running time most close to the queried running time, upon receipt of the above running time.

21.   The method of claim 20, wherein the digest level determining unit compares the running time queried by the user with the running time and/or
15   additional information such as occurrence of events, appearance of persons, backgrounds, objects, situation information about of events, persons, objects, backgrounds of digest stream and digest segment information structures, selects a running time most close to the queried running time, and outputs a digest level of the digest stream with the selected running time and/or additional information such
20   as occurrence of events, appearance of persons, backgrounds, objects, situation information about of events, persons, objects to the decoder.

25